

## 21<sup>st</sup> Century Skills Incorporated in Design of this Project

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\*For more information on 21<sup>st</sup> Century learning please visit:

[http://route21.p21.org/index.php?option=com\\_content&view=article&id=5&Itemid=2](http://route21.p21.org/index.php?option=com_content&view=article&id=5&Itemid=2)

There are six 21<sup>st</sup> Century Skills that this project has been designed around. They are:

- **Creativity & Innovation** [Learning & Innovation Skills]
- **Critical Thinking & Problem Solving** [Learning & Innovation Skills]
- **Communication & Collaboration** [Learning & Innovation Skills]
- **Information Literacy** [Information, Media & Technology Skills]
- **Media Literacy** [Information, Media & Technology Skills]
- **Information, Communications & Technology Literacy** [Information, Media & Technology Skills]

Students are required to build their **creativity and innovation** skills. Many tasks, such as examining how a sugar cube can dissolve quicker or deciding how they can test for a contaminant require students to brainstorm, analyze and evaluate their ideas to meet the challenge posed. All tasks require collaboration among students and then they must try their idea to implement the innovation.

By giving students a problem to solve, or by posing a question, such as how do ion size and charge affect solubility, students are forced to reason, make judgements and decisions and solve problems. This unit was designed to provide as many opportunities for **critical thinking** as possible.

Students are expected to **communicate** their results clearly for every task. This may take many different forms such as a short synopsis provided to the class, information posted on the course website or just a discussion with peers and/or the teacher. I've designed this unit so that the teacher acts as a facilitator and so assessment for learning is constantly occurring and there are many opportunities for conferencing between students and teacher and students with students. All tasks have students working in diverse small groups, whether it is a pair, a group of 3 or a group of 4 so students will work on their **collaboration** skills.

Students are expected to have **access to information** efficiently, meaning the class would ideally have wireless access and a class set of laptops. Many tasks require students to do research to determine the answer, such as how do ion size and charge affect solubility or what is the difference between Arrhenius and Bronsted-Lowry theories. As students do more research, they will improve their ability to critically evaluate information and manage information.

Students are required to create a video that creatively incorporates many aspects of water quality and contamination. By doing this, students will be strengthening their **media literacy** skills. Students will have to understand and utilize the most appropriate media creation tools and express themselves for a diverse, multi-cultural audience.

Throughout this unit, students will be asked to use the internet, laptops, smart phones and many different software programs to complete the tasks. **Technology tools** the students will be asked to use include: Socrative, phET Interactive Simulations, Youtube, Animoto/Camtasia, Wallwisher, Microsoft Office Suite – Powerpoint, Word, Publisher, course website, Internet search engines etc. These tools will be used to research, organize, evaluate and communicate information. Students are always expected to remember the ethical issues surrounding the access and use of technologies (should be gone over by the teacher at the beginning of the course).